Arizona Department of Health Services
Bureau of Emergency Medical Services and Trauma System

ACS Trauma System Consultation
June 26-29, 2007

Pre-Review Questionnaire

The PRQ was distributed statewide for input from the EMS and trauma system stakeholders. Responses from stakeholders to the Bureau of EMS and Trauma System were complied to create a consolidated PRQ. Some stakeholder responses have been shortened, without losing meaning or information, to keep the overall length of the consolidated PRQ to a minimum. Some technical changes have been made for clarification purposes as well. Complete responses from individual regions are included separately in the respective binders.

A.	Administration Components
1)	Leadership

1. What is the organizational structure of the lead agency, including reporting requirements?

The Arizona Department of Health Services (ADHS), Division of Public Health Services, Public Health Preparedness Services, Bureau of Emergency Medical Services and Trauma System (Bureau) is the lead agency. Refer to Organizational Charts, See attachment 1.

2. Is there a Trauma System Advisory Committee?

Yes, State Trauma Advisory Board (STAB) established pursuant to A.R.S. § 36-2222.

Who is on the committee (what groups are represented)?

The State Trauma Advisory Board membership categories are established in A.R.S. §36-2222, and consists of the following 20 members:

Bentley Bobrow, M.D. (STAB Chair) - Bureau Medical Director
Victor McCraw - Department of Public Safety Representative
Roy Ryals - AEMS Representative
Bill Ashland, R.N. - NAEMS Representative
Michelle Ziemba, R.N., M.S.N. - SAEMS Representative
Stewart Hamilton, M.D. - WACEMS Representative
Charles Frank Allen, M.D. - Trauma Center Representative
John Porter, M.D. - Trauma Center Representative
Scott Petersen, M.D. - National College of Surgeons
Jeff Farkas - AFDA Representative (Statewide Fire District Association)
Debbie Johnston - Hospital Association Representative
Jim Flaherty, M.D. - Indian Health Service Representative
Stuart Alt, M.D. - National Organization-Emergency Physicians
Ritch Steven - National Association-Retired Persons
Kelly Silberschlag - Rehab Facility Representative
Laurie Wood - Urban ALS Base Hospital-Not A Trauma Center
Philip Johnson, M.D. - Rural ALS Base Hospital-Not A Trauma Center
Mark Venuti - Ambulance Association Representative
Dave Ridings - Fire Department in a County with a Population over 500,000
Anslem Roanhorse - Tribal Health Organization Representative

What are the goals and objectives of the committee?

The goals and objectives of the committee are defined in statute (A.R.S. § 36-2222):

1. Make recommendations on the initial and long-term processes for the verification and designation of trauma center levels, including the evaluation of trauma center criteria;
2. Make recommendations on the development and implementation of comprehensive regional emergency medical services and trauma system plans;
3. Make recommendations on the state emergency medical services and trauma system quality improvement processes, including the state trauma registry.

If the committee has met, what has it accomplished to date? What are the authority, responsibility, and reporting requirements of the committee?

Following is a timeline that reflects trauma system accomplishments leading up to and after establishing STAB. STAB's authority and responsibilities exist in statute. The Board prepares and submits an annual report to the ADHS Director of its accomplishments and recommendations.

- 1990 - The National Highway Traffic Safety Administration (NHTSA) Technical Assistance Team conducts an assessment of the Arizona EMS system September 1990, resulting in recommendations for future system development, including trauma system development. See attachment 2.

- 1991 - Seven urban-based acute care hospitals become self-designated trauma centers. Each trauma center collects trauma data, but no centralized mechanism is available to collect aggregate data from the trauma centers.
- 1992 - In January 1992, BEMS publishes and releases *Statewide Medical Standards for Non-Physician Prehospital Treatment and Triage of Patients Requiring Emergency Medical Services*.
- 1992 - BEMS convenes a NHTSA Trauma System Development Seminar in November 1992 in response to the 1990 NHTSA assessment recommendations report, creating the Trauma System Task Force to assist in developing of the eventual *Arizona Trauma System Development Act of 1993*.
- 1993 - House Bill 2208 is chaptered into AZ Laws April 1993, establishing the *Arizona State Trauma System Development Act of 1993*; establishing the Division of EMS as the lead agency for trauma system development; establishing the confidentiality of trauma registry records; and establishing the Statewide Trauma System Study Committee to develop recommendations for the Director on developing an Arizona trauma system.
- 1993 - ADHS submits a trauma system development grant application to HRSA July 1994, under the federal *Trauma System Planning & Development Act of 1990*.
- 1993 - The Health Resources & Services Administration ("HRSA") awards ADHS an $88,200 trauma system planning and development grant October 1993.
- 1993 - The Statewide Trauma System Study Committee releases its *Report to the Governor* November, 1993. See attachment 3.
- 1993 - HRSA awards BEMS a grant October 1993, to modify Arizona's trauma care plan under the Trauma Care Systems Planning & Development Act of 1990. The grant proposal includes a letter from Governor Fife Symington, dated July 1993, stating, "…the need for trauma planning is critical in Arizona".
- 1994 - Statewide Trauma System Study Committee deactivates and dissolves March 1994.
- 1994 - House Bill 2077 is chaptered into AZ Laws April 1994, establishing the State Trauma Advisory Board (STAB), guided by the Statewide Trauma System Study Committee 1993 Report, and replacing the Statewide Trauma System Study Committee; establishing requirements for trauma centers to submit a uniform data set to ADHS; establishing liability protection from civil damages for AZ EMS or health care providers who in good faith provide prearrival instructions following minimum standards established by the State; requiring ADHS to establish standards for quality assurance, confidentiality of information during quality assurance review.
- 1994 - Cales & Associates installs trauma registry software on the BEMS' 486 Computer, in anticipation of receiving trauma data from the pilot project participating hospitals April 1994.
- 1994 - Trauma data pilot project was conducted from June through July 1994, to collect trauma data from two metropolitan trauma centers (St. Joseph's Hospital in Phoenix and University Medical Center in Tucson), each directly associated with two rural hospitals and two suburban hospitals.
- 1994 - STAB holds its inaugural meeting September 1994.
- 1995 - Flagstaff Medical Center becomes a self-designated trauma center, and starts submitting trauma data to BEMS.
- 1995 - House Bill 2023 is chaptered into AZ Laws April 1995, granting the ADHS director the authority to promulgate rules for regulating and licensing air ambulances.
- 1996 - Arizona Senate Bill 1060 is chaptered into AZ Laws in April 1996, mandating the appropriation of $250,000 from the BEMS Operating Fund for trauma system development and for STAB operating expenses.
- 1997 - House Bill 2126 is chaptered into AZ Laws April 1997, establishing liability protection from civil damages for individuals, private and public entities, and their employees involved in developing, operating, implementing or participating in a 911 emergency telephone system or a similar emergency dispatch system. But there's no liability protection when "the person or entity acted knowingly or had reason to know the facts that would lead a reasonable person to realize that the person's or entity's act or failure to act not only created an unreasonable risk of bodily injury to others, but also involved a high probability that substantial harm would result".
- 1998 - ADHS publishes and releases the State of Arizona Trauma System Plan Statewide Assessment Results Final Report June 1998, containing results of *The Abaris Group* survey of 62 resource hospitals from November 1997 – January 1998.

- 1998 - House Bill 2653 is chaptered into AZ Laws May 1998, establishing the three-digit emergency telephone number system to be administered and regulated by the Public Utilities Commission; and the telephone number "911" is specifically reserved for exclusive use as an emergency telephone number for accessing police, fire, and emergency medical services.
- 1998 - STAB presents trauma plan recommendations to the ADHS director, based on members' research and development efforts since 1995.
- 1999 - House Bill 2475 is chaptered into AZ Laws May 1999, establishing Automatic External Defibrillator statute. The statute includes requirements for AED training, use, requirements, and civil liability protection, limited immunity, and a Good Samaritan provision.
- 2002 - ADHS/Bureau of EMS, releases the 2002 – 2005 Arizona EMS & Trauma System Plan in January 2002.
- 2002 - The Trauma and Emergency Services Fund is created by AZ Initiative Measure, Proposition 202, approved and effective 11/02, codified under A.R.S. § 36-2903.07, and administered under A.A.C. Title 9, Chapter 22, Article 21 (effective 10-19-03, which provides in part for the distribution of funds only to Level I trauma centers as defined).
- 2004 - House Bill 2197 is chaptered into AZ Laws June 2004, amending A.R.S. § 36-2222 by amending the duties of the STAB to require continued involvement in the development and implementation of the EMS and Trauma System and adding a representative from a tribal health organization to STAB. HB 2197 also adds A.R.S. § 36-2225 establishing the authority for ADHS to develop and administer the Statewide EMS and Trauma System and establishing the requirement for ADHS to adopt rules to establish standards.
- 2005 - Senate Bill 1134 is chaptered into AZ Laws April 2005, amending A.R.S. § 36-2225 by 1) authorizing ADHS to utilize a national verification organization to conduct trauma center verifications; and 2) requiring trauma centers to submit data to the State Trauma Registry.
- 2005 - The Governor's Regulatory Review Council unanimously approves trauma center designation rules, including trauma center standards, October 2005, by adding Article 13 to A.A.C. Title 9, Chapter 25, and taking immediate effect.
- 2005 - The ADHS receives the first application for trauma center designation on 11-8-05, and on 11-10-05, ADHS designates John C. Lincoln Hospital – North Mountain as Arizona's first state designated trauma center, with a Level I designation.
- 2005 - The ADHS-Bureau of EMS initiates the *Save Hearts in Arizona Registry and Education* ("SHARE") Program, which develops and maintains a statewide out-of-hospital cardiac arrest and AED use registry, AED training, and medical oversight and a quality improvement process for AED use programs.
- 2005 - November 2004, ADHS establishes and hires full-time dedicated Trauma Registry Manager to standardize, convert, and manage State Trauma Registry data from participating trauma centers and hospitals.
- 2006 - The Governor's Regulatory Review Council unanimously approves air ambulance rules February 2006, for the licensure, registration, and ADHS approval time-frames for air ambulance services in Arizona by amending A.A.C. Title 9, Chapter 25, adding Articles 7, 8, and 12, taking effect April 2006.
- 2006 - September 2006 – Arizona's state trauma registry successfully generates standardized trauma registry data, collected by Arizona hospitals and trauma centers.

3. Does the lead agency have a Trauma Medical Director?
No. Although ADHS does not have the statutory authority to create a Trauma Medical Director position, there is active participation by the trauma medical directors at the committee level. Trauma is well-represented.
Are there plans to have a Trauma Medical Director in the future?
This has not been discussed.

4. What are the role and responsibility of the Trauma Medical Director?

Not applicable
What are the qualifications of the Trauma Medical Director?
Not applicable
What is the authority for the Trauma Medical Director?
Not Applicable.

5. Is there a trauma system administrator with expertise in trauma system development/implementation?
Dr. Ben Bobrow, Bureau Medical Director, Terry Mullins, Bureau Chief and Vicki Conditt, Trauma System Section Chief. Dr. Bobrow and Mr. Mullins both have EMS and trauma experience. Vicki Conditt is a Registered Nurse who has been with the Department of Health Services for over 10 years, four of those years with the Bureau of EMS and Trauma System. Ms. Conditt did not have trauma system development expertise when appointed to this position.
Are other trauma system support resources (equipment and personnel) available for trauma system implementation and planning?
The Bureau of EMS and Trauma System has four dedicated trauma services staff plus other support personnel. Other resources are available within ADHS's Bureaus/Offices: • Bureau of Public Health Statistics - Statistical software and data analysis, population-based health registries including the state trauma registry and vital records. • Bureau of Emergency Preparedness and Response (BEPR) - Preparedness coordination, web-based ED status and bed availability, public health alerts. • Office of Women's and Children's Health - Emergency Medical Services for Children (EMSC), Injury Prevention programs, SAFE KIDS Additionally, voluntary public organizations are established in the four regions of the State. Each region contracts with the Bureau to conduct activities as prescribed in the contracts. The regions receive funding from the Bureau pursuant to Arizona Revised Statutes §36-2210 to conduct needs assessments, and plan and coordinate regional emergency medical and trauma services. The regions support the trauma system and the Bureau by participating in all related activities and projects.

A.	**2)**	**System Development**

1. Has the trauma system completed a needs assessment and identified appropriate trauma system resources?
The most recent needs assessment conducted by the Bureau was the 2005 EMS and Trauma System Assessment, which combined questions for a number of components that make up EMS and trauma systems. This assessment/survey was distributed statewide through the four Regional Councils and achieved a 59% response rate. See attachment 4. The needs assessment partially identified trauma system resources. ADHS has not used the results of this assessment in a strategic manner; however, the compiled results have been made available to the four regions and are posted on the Bureau's website. The Bureau has recently committed a full time position to the evaluation and reporting on the analysis of trauma, EMS and cardio-vascular data from a public health perspective.

2. Does a process exist for setting realistic time frames for implementing each component of the system?
A specific process for implementing each component of the system does not exist. Administration and leadership for trauma system development was established by laws 1994. The EMS and Trauma System Plan, Trauma Patient Field Triage Decision Standard, and Registry Inclusion Definition were established a number of years after the originating legislation. Laws 2004 (A.R.S. § 36-2225) requires ADHS to develop rules to establish various components for the EMS and trauma system. ADHS' initial priority was to establish the trauma center designation rulemaking, which was

successfully accomplished in October 2005. There are currently 7 state designated Level I trauma centers.

The State Trauma Registry standardization project has been ongoing and is almost complete. A draft data dictionary has been developed. Additional data elements will be added to the State Trauma Registry and hospital's registries to match the NTDB data elements.
The rulemaking currently underway establishes timeframes and requirements for reporting trauma data from trauma centers and participating hospitals to the State Trauma Registry, including the required data elements, quality assurance specifications, and establishes the Registry Inclusion Criteria in rule.

Individual rulemaking packages have timelines. STAB is charged with and does provide recommendations for system development. The Bureau recognizes that a strategic planning activity and annual review is needed to determine priorities and will work with STAB to establish those priorities.

3. Is there a process to build a constituency group and involve prehospital/hospital and health professionals and consumer groups in planning, developing, and supporting the trauma system?

ADHS involves all relevant stakeholders, including Regional Councils, and committee members (EMS Council, Education Subcommittee, Medical Direction Commission, Protocols, Medications, and Devices Committee, State Trauma Advisory Board, the AZ Trauma Quality Assurance and Performance Improvement Committee, and the Trauma Registry Users Group) in all of its processes, whether rulemaking, protocols, Guidance Documents, or Substantive Policy Statements.

4. Have appropriate trauma care guidelines and system standards of care been developed or adopted, including trauma policies, procedures, and protocols?

STAB has adopted, as a Guidance Document, the Arizona Trauma Patient Identification & Field Triage Decision Standard. See attachment 5. STAB also adopted the Trauma Patient Registry Inclusion Definition, which is to be used to identify a trauma patient to be reported by a hospital to the State Trauma Registry. See attachment 6. The current Trauma Registry rulemaking will include a revised definition of "Trauma Patient" and the requirements for reporting to the Trauma Registry in a more streamlined, understandable version. See attachment 7, draft rulemaking. Aside from these documents, there are no other statewide trauma policies, procedures, protocols or guidelines developed to date. The Regions have developed regional policies and protocols for use in their respective regions.

The Emergency Medical Services Council developed statewide medical standards for non-physician treatment and triage of patients requiring emergency medical services in 1995. However, only the pediatric treatment and triage protocols for the top 10 disease entities and dysrhythmias have been kept current, distributed statewide, and are available on the Bureau's website. The Bureau intends to begin working on the adult treatment and triage protocols and to include the adult and pediatric protocols in rule.

REGIONS

- **AEMS**
  AEMS Red Book prescribes trauma related protocols and guidelines - Pediatric Trauma Triage Guidelines: Chapter 3, Part II, pages 4, 13, and 15; and Chapter 5, page 4; plus other conditions affecting pediatric trauma in the Chapters. Adult Trauma Triage Guidelines: Chapter 4, pages 5 and 6; plus other conditions affecting trauma in the Chapter. Categorization of Trauma and Burns: Chapter 7. Diversion: Chapter 8, page 7; and other parts of Chapter 8. Field Termination: Chapter 10, pages 2 and 3. Air Medical: Chapter 11, page 4. See attachment 8. (Sample from the AEMS Red Book.) The entire document will be available for review on site.

- **NAEMS**
  NAEMS Council currently only provides protocols for the EMT-Basic without medical direction. Due to the large area covered in the Northern Region the ALS Base Hospitals develop their own protocols and procedures for trauma. For example, the Northern Region trauma center which is also an ALS base hospital

has integrated policies, procedures, and protocols for the care and transport of trauma victims to FMC. See attachment 9. (Sample from the NAEMS protocols) The entire document will be available for review on site.

- **SAEMS**
  Yes we have trauma protocols that are reviewed annually or as needed. See attachment 10. (Sample from the SAEMS protocols) The entire document will be available for review on site.

- **WACEMS**
  The region has baseline protocols. Each receiving hospital within the region has their own protocols which, at a minimum, mirror the regional protocols. See attachment 11. (Sample from the WACEMS protocols) The entire document will be available for review on site.

5. Is the trauma system integrated with the EMS system?

Yes, however, improvements can be made. STAB membership includes individuals with significant EMS experience, and EMS Council has numerous individuals with trauma system experience. At the Bureau level, both programs are fully integrated within ADHS activities.

All regional trauma system activities are integrated with the EMS system. The regions developed a regional EMS and Trauma System Plan as a component of the State EMS and Trauma System Plan. The trauma triage protocols adopted and used in each region were developed using the Plan and State Trauma Patient Identification & Field Triage Decision Standard as a template. The state standard is modeled after the ACS version. Regions may have altered the standards to accommodate unique regional situations.

Three of the four regions have established trauma subcommittees to assess and integrate trauma services into the respective regions. The subcommittee meetings include key membership and trauma care stakeholders. Specific regional trauma protocols for prehospital trauma care are discussed in this venue.

Some of the Native American tribes work with the regional councils in their respective regions and follow those regional protocols and guidelines.

With mass casualty and disaster response systems?

The Bureau does participate in the Bureau of Emergency Preparedness and Response (BEPR) simulation scenarios, conferences, and exercises initiated in ADHS's Emergency Operation Center. The Bureau is not specifically coordinated with the Arizona Division of Emergency Management, Metropolitan Medical Response System, and Disaster Management Assistance Teams, although the regions and BEPR are. BEPR is integrated with mass casualty and disaster response systems. BEPR is currently developing a Preparedness and Response Plan and is establishing a statewide Arizona Emergency System for Advanced Registration of Volunteer Health Professionals program to enhance available resources for surge capacity in the event of a mass casualty or disaster.

BURN CARE NETWORK

ADHS' Bureau of Emergency Preparedness and Response initiated a grant-funded program in 2006 which will, when fully implemented, link the Arizona Burn Center with a network of hospitals who agree to provide the treatment for patients suffering from burns for the first 72 hours following a disaster. Using a telemedicine system, Maricopa Integrated Health System in Phoenix, the state's only designated burn center (also a Level I Trauma Center) would be able to supervise and direct the initial burn care being provided at a number of hospitals throughout the state in the event of a major burn disaster event. Additionally, the burn care network significantly extends the capacity and expertise of a single burn center. This approach, enabled by teletrauma systems, can be applied to the trauma care system in general, thus improving the trauma system infrastructure and making it more capable of handling surges during disasters and Homeland Security emergencies.

With managed care programs?

Managed care and insurance providers are not represented on STAB or EMS Council.

6. Does the trauma system have a mechanism to integrate managed care entities in the area?

Not on a state or regional level. Individual hospitals/trauma centers negotiate with managed care entities.

7. How have the incentives changed within the trauma system? Specifically, do you have a mechanism to assess the changes and incentives (risks and benefits) in caring for trauma patients?

A financial incentive that currently exists is Proposition 202 (Indian Gaming Preservation) approved by Arizona voters in 2002. Prop 202 allocates 23% of Indian gaming revenues to the Trauma and Emergency Services Fund. Monies are used to reimburse hospitals for unrecovered trauma center readiness costs and unrecovered emergency services costs. These funds are managed and distributed through the Arizona Health Care Cost Containment System (AHCCCS). However, distribution of these funds provides for reimbursement only to Level I trauma centers designated by ADHS. Trauma Centers currently designated by ADHS as Level I's under a grandfather clause, provided for in rule, must be renewed before January 2009 as a State designated Level I to continue to receive these monies. Renewal requires ACS verification as a trauma center or ACS determination that the trauma center meets the state standards for designation as a Level I. See financial section of this document for specific dollar amounts.

As an incentive for health care institutions to seek designation as a trauma center at any level, the Bureau offered a one-time $10,000 mini-grant per facility to be used for activities in preparation of designation as a trauma center. Twelve hospitals applied for and received the award.

No other financial incentive currently exists for any designation level.

SB1032 requires statutory elements of proof for medical malpractice cases related to certain emergency circumstances to be established by clear and convincing evidence rather than the current burden of proof. If this bill passes during the 2007 session, it may serve as an incentive for physicians and surgeons to take call in Arizona hospitals.

The State Trauma Registry can now be utilized as a mechanism to assess trauma and patient outcomes in Arizona through data review processes currently being established. Unfortunately, there are only 13 hospitals reporting data to the registry. The statutes only mandate designated trauma centers to report trauma data. The other few that report trauma data do so voluntarily.

How has managed care affected reimbursement for trauma care?

We have not assessed this on a system-wide basis.

Managed care can impact trauma care reimbursement through (1) prior authorization requirements; (2) out-of-network transfer requirements; and (3) claims denials after care has been provided. Arizona Revised Statute § 20-2803, Emergency services access; prior authorization; requirements, was enacted in 1996 to mitigate the impact of prior authorization, but it does not adequately address transfer or claims denial concerns.

A.R.S. § 20-2803 requires managed care plans to provide coverage for the medical screening and stabilizing treatment a hospital must provide under EMTALA without prior authorization, subject to applicable copayments, coinsurance and deductibles. (Professional fees are also included.) While this statute has provided some financial protection for trauma centers, there are two concerns. First, there is no cap on the cost-sharing that plans may shift to patients receiving care from an out-of-network care are at greater financial risk. Second, the statute only provides coverage up to a provider's EMTALA obligation. Managed care plans may and generally do require patients to be transferred after stabilization, which can create problems related to continuity of care.

8. Does the system have a plan to deal with patients of all ages?

Patients of all ages are handled via regional protocols. Through the state's EMS for Children program, an advisory committee was developed to provide expert recommendations in the treatment and triage of pediatric patients for a variety of conditions. These are guidance documents and unenforceable, as such. However, these are available on a statewide basis and may be downloaded from the Bureau's website. These guidance documents have recently been updated to include the most current recommendations for providing field emergency care to pediatric patients.

See attachment 12.

There is a statewide EMS and Trauma System strategic plan dated 2002-2005. This plan is outdated, strategic rather than operational, and nonbinding. It is a guideline only. The Bureau has begun a process of establishing treatment protocols in rule. Following the conclusion of the ACS Trauma System Consultation, the Bureau anticipates a complete revision of the EMS and Trauma System Plan.

A.	3)	Legislation

1. Are there comprehensive trauma care legislation and regulations pertaining to the development of the trauma system?

Yes. A.R.S. § 36-2225 (new laws 2004) established the authority for developing the trauma system and mandating rules for components of the system. Rules are continuously being developed and revised to support our trauma system.

2. Does the legislation establish a lead agency with the authority to plan, develop, implement, and evaluate the inclusive trauma care system?

Yes.

What is the lead agency?

The Arizona Department of Health Services (ADHS) Bureau of Emergency Medical Services and Trauma System (BEMSTS)

3. Does the legislation include provisions for:

a. a trauma system plan - yes
b. integration of trauma and EMS system - yes
c. prevention programs - yes
d. establishment or adoption of standards of care – For Prehospital only
e. the designation of trauma centers - yes
f. organization of data collection and system evaluation - yes (see below)
g. confidentiality protection of data collection or quality improvement records/reports - yes (see below)
h. quality management and quality improvement programs - yes
i. anti-trust protection – no

Clarification for items (f) and (g) above:
(f) Pursuant to A.R.S. §36-125, ADHS collects inpatient hospital data and emergency department data for cost reporting and discharge data review. Data is collected on all patients from state licensed hospitals except psychiatric facilities. Federal hospitals and Indian Health Services hospitals are not licensed by the state and are not required to report their ED and inpatient hospital data to ADHS.
Trauma Registry data is collected pursuant to statute. Per A.R.S. §36-2221, "trauma centers shall submit to the department a uniform data set for the trauma patient as prescribed by the department. Advanced life support base hospitals that are not trauma centers may also submit this data to the department. The director shall identify the categories of patients who are to be reported as trauma patients under this section."
(g) Statutes for emergency department, inpatient hospital discharge and trauma registry data collection require strict standards of confidentiality. Only aggregate, non-identifying information may be released for public review. Pursuant to A.R.S. §36-2220, trauma registry information may not be released to the public "from which a patient, the patient's family or the patient's health care provider or facility might be identified except records, files and information shall be available to the patient, the patient's guardian or the patient's agent." Information reviewed for quality assurance purposes is also confidential pursuant to statute.

Specifically, the statute requires ADHS to develop and administer a statewide emergency medical services and trauma system to implement the Arizona EMS and trauma system plan, and to adopt rules to establish standards for:

1. Injury prevention activities to decrease the incidence of trauma and decrease the societal cost of preventable mortality and morbidity;
2. Public access to prehospital emergency medical services;
3. A statewide network of trauma centers that provide trauma care and to which trauma patients can be transported;
4. A trauma center designation and dedesignation process for health care institutions that provide trauma care;
5. Trauma system evaluation and quality review through the collection and analysis of data; and
6. Protection of confidential patient care and trauma registry information.

4. Does the legislation authorize dedicated and earmarked trauma funding?

Yes, an appropriation of $100,000 was included in the trauma legislation for FY 04-05 with an annual appropriation for subsequent years to be included in ADHS's annual budget request. Trauma Development and the Trauma Registry are funded under the Medical Enhancement Fund through an annual appropriation from the EMS Operating fund, currently $392,000 with four FTEs. This amount includes the additional $100,000. See attachment 13.

Prop 202 allocates Indian gaming revenues to the Trauma and Emergency Services Fund. Monies are used to reimburse hospitals for unrecovered trauma center readiness costs and unrecovered emergency services costs. These funds are managed and distributed through the Arizona Health Care Cost Containment System (AHCCCS).

Prop. 303, the Tobacco Tax Fund approved by Arizona voters was, among other things, intended to provide monies for the reimbursement of uncompensated care, primary care services and trauma center readiness costs. However, the funding was subject to legislative appropriation and is not being distributed to trauma centers. This could fund ALL levels of trauma care in the state.

SB1193 (2006 Legislative Session) appropriated $2,000,000 to the primary trauma center in Southern Arizona, University Medical Center, a not-for-profit academic medical center, from the Medically Needy Account of the Tobacco Tax and Health Care fund to off-set costs of trauma care. See attachment 14.

Are the funds placed in a special account rather than in a general fund?

Yes. The Medical Enhancement Fund, A.R.S. § 36-2219.01, collects funds from DUI and other Motor Vehicle fines. In FY06, the fund amounted to approximately $11.7 million and was distributed as follows:

ARIZONA DEPARTMENT OF HEALTH SERVICES
MEDICAL SERVICES ENHANCEMENT FUND

EMS Operating Fund	$5,701,733.45	48.9%
Spinal and Head Injuries	2,565,197.05	22.0%
Substance Abuse	1,655,718.10	14.2%
Substance Abuse Administration	1,096,038.74	9.4%
General Fund	641,299.26	5.5%
Total	$11,659,986.61	100.0%

Of the EMS Operating Fund, the Bureau of EMS and Trauma System was appropriated $3.2 million and Trauma Development was appropriated $392,000. These funds are subject to annual appropriation by the Legislature.

The 23% of Indian Gaming monies are placed in a special Trauma and Emergency Services Fund. This fund is administered by the Arizona Health Care Cost Containment System (AHCCCS) - Arizona's Medicaid.

A.	4)	Finances

1. a. Are there two years of audited trauma system financial reports, as defined by generally accepted accounting principles? Explain the budget review process.

Yes. Tight financial reporting processes exist with ADHS. The trauma budget is part of ADHS's annual appropriation and has not been audited independently, to the best of our knowledge. The Bureau has an opportunity to submit requests for additional funding on a yearly basis. Final funding levels are determined by the legislature.

b. Are costs reported in a standardized model accounting format?

Yes. ADHS uses the Joint Legislative Budget Committee's accounting policies and procedures.

2. Does the lead agency report its finances by component, in summary, or both?

Internally, ADHS reviews the budget in various formats on a quarterly basis. ADHS's Trauma Development budget is appropriated annually as a special line item. ADHS accounting system reports the budget expenses by item and as a separate total within the ADHS budget. See attachment 15.

How are the finances documented for review? Give an example.

Electronic reports comparing projected and actual expenditures and variances are reviewed by administrative staff. For example, all expenses are documented by invoice or receipt of charges as required by the Arizona State Accounting Manual.

3. What are the sources and terms of external funding (for example, grants, state/local taxes)?

Prop 202 allocates 23% of Indian gaming revenues to the Trauma and Emergency Services Fund. Monies are used to reimburse hospitals for unrecovered trauma center readiness costs (90%) and unrecovered emergency services costs (10%). These funds are managed and distributed through the Arizona Health Care Cost Containment System (AHCCCS). However, distribution of these funds provides for reimbursement only to Level I trauma centers designated by ADHS. See attachment 16, Arizona Department of Gaming and AHCCCS reports delineating distribution of funds.

The Federal Health Resources and Services Administration (HRSA) EMS/Trauma Grant previously provided $40,000 annually to the state trauma system for trauma development initiatives during 2002-2005.

The Medical Enhancement Fund, A.R.S. § 36-2219.01, collects funds from DUI and other Motor Vehicle fines. The funds are distributed as shown on the table above under A(3)(4).

Trauma System Development, including the Trauma Registry, is funded via a special line item through an annual appropriation from the EMS Operating fund - currently $392,000 with four FTEs. Funds are allocated quarterly to support employee salaries and ERE, trauma registry system user and software support, in and out-of-state travel and various operating costs. Additional administrative and office expenses are supported by the Bureau of Emergency Medical Services and Trauma System.

Federal HRSA EMS for Children grant funding provides support for data collection activities and surveys.
The Bureau receives dedicated funding from the EMS Operating Fund, subject to legislative appropriation, and distributes 8% of the total to the Bureau of EMS and Trauma System to each of the four regions, approximately $144,000 each. Additionally, funding is provided for various projects. The regions are able to seek out additional funding sources.

If a funding source is tied to a specific program (for example, drunken driving, registration tax), provide past history and future projection.

The Medical Enhancement Fund, A.R.S. § 36-2219.01, collects funds from DUI and other Motor Vehicle fines. The funds are distributed as shown on the table under A(3)(4). Funds distributed to Spinal and Head Injuries are administered by the Department of Economic Security for: Administration, Employment and Rehabilitation Services-Admin., Vocational Rehabilitation Services, and Independent Living Rehabilitation Services.

Funds distributed to Substance Abuse are administered by Behavioral Health Services for funding of Substance

Abuse Programs, non-Title XIX.

Trauma System Development, including the Trauma Registry, is funded via a special line item through an annual appropriation from the EMS Operating fund - currently $392,000 with four FTEs. Funds are allocated quarterly to support employee salaries and ERE, trauma registry system user and software support, in and out-of-state travel and various operating costs. Additional administrative and office expenses are supported by the Bureau of Emergency Medical Services and Trauma System. The EMS Operating fund has experienced several years of approximately 8% growth in revenue. This increase can be directly tied to the change in state law reducing the DUI blood alcohol rate from .10% to .08%, and the substantial population growth of this state. There are no other grants or funds supporting trauma system development at this time.

4. Does the budget coordinate with the goals and objectives of the trauma plan?

The budget has continued to support the intent of the 2001 trauma plan for trauma system development, including the funding of the State Trauma Registry, via a special line item through an annual appropriation from the EMS Operating fund - currently $392,000 with four FTEs. State mini grants were offered to health care institutions to offset the costs of designation or used for activities to prepare for designation.

5. Does the trauma center track and measure trauma costs by patient, diagnosis, length-of-stay at (ICU) facility, Department physician, and payor?

Each trauma center's trauma registry does have the ability to track and measure trauma program costs, compared to injury severity, payor sources and trend program lengths of stay to national benchmarks. This information is relayed to AHCCCS to ensure appropriate use of the Trauma & Emergency Services Fund (Prop.202 Indian Gaming monies). The Trauma & Emergency Services Fund administered by AHCCCS is distributed as follows: 90% of monies to Level I trauma centers for unrecovered trauma center readiness costs. Unexpended funds may be used to reimburse unrecovered emergency room costs. 10% of the monies from the fund are distributed for unrecovered emergency services costs to a hospital having an emergency department. Prop. 303, the Tobacco Tax Fund approved by Arizona voters was, among other things, intended to provide monies for the reimbursement of uncompensated care, primary care services and trauma center readiness costs. However, the funding was subject to legislative appropriation and is not being distributed to trauma centers. This could fund ALL levels of trauma care in the state.

If yes, how is the information used (for example, feedback to physicians)?

The trauma centers have established different mechanisms to provide trauma program information to physicians and others. The program information is tracked and measured, reviewed, and the information is provided to physicians during Trauma Committee, a regularly scheduled frequent multidisciplinary meeting dealing with trauma system issues.

Is this information forwarded to the lead agency?

Yes. Arizona State Trauma Registry and Hospital Discharge Database patient charge information is received from hospitals quarterly and semi-annually respectively. Trauma centers provide financial data quarterly to the State Trauma Registry. Additionally, Level I's provide very specific information to AHCCCS in order to be eligible for the reimbursement of trauma readiness funds.

6. Does the trauma system equate costs to relative value gained (cost of utilizing resources)?

No. Although a cost/benefit analysis is not done, the Annual Trauma Funding Report provided to AHCCCS from the trauma centers does include total costs of the trauma program and patient outcomes.

7. Does the trauma system or center track payor mix utilization? If yes, what are the current payor mix, relative collection ratios, and defined trends?

Yes. ADHS Trauma Registry collects information on primary and secondary payor mix utilization. Hospital discharge data collects information on primary-only payor mix utilization. Trends would be possible from the hospital discharge from 2003 and with trauma registry from 2005.

Trauma Center Payor Mix Data - 2006

Hospital #1

Payor Source	Mix	Collection rate
Commercial	34%	50%
AHCCCS/Medicaid	42%	22%
Medicare	7%	22%
Self Pay	15%	6%
Other	2%	31%
Unknown	0%	n/a

Hospital #2

Payor Source	Mix	Collection rate*
Commercial	30%	
AHCCCS/Medicaid	41%	
Medicare	12%	
Self Pay	12%	
Other	5%	
Unknown	0%	

Hospital #3

Payor Source	Mix	Collection rate*
Commercial	28%	
AHCCCS/Medicaid	25%	
Medicare	4%	
Self Pay	9%	
Other	10%	
Unknown	24%	

Hospital #4

Payor Source	Mix	Collection rate
Commercial	7%	34%
AHCCCS/Medicaid	16%	40%
Medicare	2%	16%
Self Pay	55%	6%
Other	20%	45%
Unknown	0%	n/a

Hospital #5

Payor Source	Mix	Collection rate*
Commercial	42%	
AHCCCS/Medicaid	19%	
Medicare	6%	
Self Pay	33%	
Other	0%	
Unknown	0%	

Mean for Reporting Hospitals

Payor Source	Mix	Collection rate
Commercial	28%	42%
AHCCCS/Medicaid	29%	31%
Medicare	6%	19%
Self Pay	25%	6%
Other	7%	38%
Unknown	5%	n/a

* Collection rate not provided

2001Trauma System Financial Survey by Bishop and Associates

Payor Source	Mix
Commercial	48%
AHCCCS/Medicaid	34%
Medicare	6%
Self Pay	11%
Other	n/a
Unknown	n/a

B.	Operational and Clinical Components
1)	Injury Prevention and Control

1. Does your system have a system-wide injury control coalition? If yes, what are the member organizations?
The statewide injury control coalition is the Injury Prevention Advisory Council (IPAC). Members include representatives from AZ Dept of Health Services whose programs address injury prevention, AZ Center of Community Pediatrics, AZ Governor's Council on Spinal and Head Injuries, Mothers Against Drunk Driving, AZ Coalition Against Domestic Violence, University Medical Center, AZ Hospital & Healthcare Association, Drowning Prevention Coalition of Central AZ, Intertribal Council of AZ, Arizonan's for Gun Safety, Engineering Mechanics AZ CODES Project, SAFE KIDS Yuma County, Phoenix Fire Dept., John C. Lincoln Hospital, Paradise Valley Hospital, University of AZ College of Nursing, AZ Poison Control System College of Pharmacy, Phoenix Area Indian Health Services, Dept of Public Safety, St. Joseph's Hospital and Medical Center, Phoenix Children's Hospital, Tucson Fire Department, Governor's Office of Highway Safety, Maricopa Integrated Health Systems, Navajo Area Indian Health Services, Students Against Destructive Decisions and Tucson Area Indian Health Services. All trauma centers, Native American tribes, and most prehospital providers have very active injury prevention programs.

2. What plans has the coalition developed?
Please refer to the 2006-2010 Arizona Injury Surveillance and Prevention Plan.

3. Which elected officials have been educated about injury and injury control?
The IPAC has not undertaken educating elected officials to date. Individual member organizations may have done so. Fact sheets have been developed and distributed to IPAC members to take back to their organizations and to further distribute. Numerous state legislators and local public officials tour hospitals and trauma centers and meet with providers to learn more about health care. Presentations have been provided to legislative committees addressing injury prevention issues. Additionally, every hospital has a lobbyist who works with the politicians. Education was provided to legislators in previous years specific to the trauma legislation. This included Senate and House Health Committee Members, Senate and House Chairs, Susan Gerard, and Carolyn Allen among others. Ms. Susan Gerard served as the Senate Health Committee Chair for a number of years and as the Health Policy Advisor to the Governor. Ms. Gerard is now the current Director for the Arizona ADHS of Health Services. The trauma legislation did pass during the 2004 legislative session.

4. How are you involved with public/voluntary organizations to aid system financing?
Stakeholder groups, including hospitals, have provided funding in the form of grants for injury prevention activities and projects. The regions and the trauma centers have established ad hoc funding mechanisms to support injury prevention activities.

5. What local injury surveillance data has the coalition reviewed (mortality data from vital records, police traffic crash data, EMS-run data, E-coded hospital discharge data)?
Mortality data from state vital records as well as E-coded Hospital Discharge and Emergency Department data, child fatality data, Behavioral Risk Factor Surveillance System data, Youth Risk Behavior Surveillance System data, and data from the Arizona Department of Education "Safe and Drug Free Schools" program were used for the Injury Plan. Arizona Department of Transportation Crash data are available for review as well. EMS-run data is not available as it is not a state data collection requirement.
What injury problems and high-risk groups and environments were identified?
Unintentional Injuries: 1. Unintentional injuries accounted for 64% of all injury-related deaths, 78% of all injury-related hospitalizations,

91% of all injury-related emergency department visits in 2004.
2. Motor vehicle injuries accounted for 1 in 4 (n = 1,018) injury-related deaths in 2004.
3. Falls were the third leading cause of unintentional injury-related deaths for all age groups and the leading cause for individuals 65 and older.
4. Of water-related events, children ages 1-4 had the highest rates of hospitalizations and emergency department visits.
5. Poisoning was the second leading cause of unintentional injury deaths for all ages in 2004.
6. Of fire/burn-related injuries, children ages 1-4 accounted for 15% of hospitalizations and 17% of emergency department visits.
7. Males 20-24 had the highest rates of hospitalizations (18.9/100,000) and emergency department visits (46.2/100,000) due to unintentional firearm-related injuries.

Intentional Injuries:

1. Intentional injuries accounted for 33% of all injury-related deaths, 13% of all injury-related hospitalizations, and 6% of all injury-related emergency department visits in 2004.
2. One in five injury-related deaths (21%, n=854) were suicides and 12% (n=486) were homicides.
3. Firearms accounted for 59% of suicides and 68% of homicides.
4. Incidents of relationship violence such as domestic violence, sexual violence, childe abuse, and adult abuse are vastly underreported through official sources.

*This information is directly from the 2006-2010 Arizona Injury Surveillance and Prevention Plan

6. Have open community forums been held to identify injury control issues of concern to the community?

Yes. The regions, tribes, prehospital providers and trauma centers provide injury prevention activities in their respective communities, i.e. red light running campaign, click-it or ticket, seat belt use, car seat use, drowning prevention, bicycle helmets, older adult fall prevention, etc.

What key problems were identified?

- Fatalities and injuries resulting from motor vehicle crashes including motorcyclist, bicyclist, and pedestrians.
- Fatalities and injuries resulting from falls among older adults.
- Pool drowning and near-drowning.
- Poisoning from lead and methamphetamine.
- Fatalities and injuries resulting from fire and flames, and scalding.
- Expanding relationships among existing reporting systems to facilitate analysis of data statewide.
- Injuries resulting from firearms.
- Suicide and attempted suicides.
- Fatalities resulting from homicide.

7. What priority injury problems has the coalition identified?

In September 2006, the Injury Prevention Advisory Council identified four subcommittees to address four injury priorities:
Violence: This group is working on mapping injuries related to firearms and creating a fact sheet.
Motor Vehicle: This group is addressing adolescent MVC injuries by working with 8 hospitals on a high school seatbelt challenge demonstration project.
Data: This group is determining the different injury data sources that are available nationally and in AZ and will create an FYI document.
Drug/Alcohol: This group is in the process of determining direction.
Each workgroup is chaired by a member of the IPAC and meets monthly.

8. What intervention plan has been developed to address the priority injury control issues?

The 2006-2010 Arizona Injury Surveillance and Prevention Plan includes strategies and interventions for a variety of injury-specific issues.

9. How will you evaluate the effectiveness of the priority injury control initiatives?
Evaluations have not been completed as yet. ADHS Epidemiologists are currently working to identify outcome measurements and determine which measures are attainable.
What are the results of any completed evaluations?
Not applicable at this time.

B.	**2)**	**Human Resources**
	a)	**Workforce Resources**

1. Describe your system for evaluating and assessing the adequacy of the work force resources available within and outside of the hospital. Describe the current strengths and weaknesses of your system of evaluating the level and adequacy of human resources for the entire trauma care delivery system.
The Bureau has surveyed EMS providers' recruitment and retention issues on an annual basis. Numerous professional organizations have independently evaluated hospital-based work force recruitment and retention issues. We have not evaluated rehabilitation work force resources. See discussion under question #4 of this section. The regions are assessing work force issues in their respective regions.

2. Describe how you have standardized the number and type of human resources to be available for the prehospital management of EMS patients, including the trauma patient.
Virtually, the entire State of Arizona is covered by an Ambulance Certificate of Necessity (CON). Each CON is characterized by community-identified standards including response times and type of service level and staffing provided. The Bureau is charged with awarding and removing Ambulance CONs. However, the Bureau has not established specific response time or service level criteria based on demographics and/or population, including those which may be specifically applicable to the trauma patient. While the Bureau approves CON response times, there is wide variability due to geo-demographics.

3. Do you have a quality management plan for monitoring availability of prehospital and hospital trauma care resources?
While there has not yet been a statewide outcomes-based quality management plan established by the Bureau, trauma centers, EMS agencies, and the regions monitor ongoing resource issues. Some regions and hospitals are developing quality indicators to monitor ongoing performance.

4. Have you developed a process for evaluating resource usage and matching resource response relative to levels of activity and level of patient care needs and system response? Discuss the sources of information and data for monitoring the system.
ADHS Bureau of Emergency Preparedness and Response has established a hospital emergency department divert status and communication system that allows each hospital ED and patient transport flight program in the state to report its status (Hospital ED; open, caution or divert) (Flight; available in quarter, unavailable on scene) through a web based system that is monitored 24/7 by regional dispatch centers and the ADHS BEPR. This system can conduct bed polls, send alert notifications and messaging. In the second quarter of 2007, this system will be implementing an additional component known as patient tracking. This component will allow EMS units in the field to use the web based system to enter and track patients from a MCI utilizing barcode scanners in the field and at hospitals to enter patient data into the sub-data base and display the patients location status on a separate display screen within the web based EMSystem that can be monitored by hospitals, dispatch enters and emergency operations centers.
a. Have you identified the need for an increased or decreased number of personnel in the prehospital arena? Discuss strategies for securing needed personnel.
Yes. The 2005 EMS and Trauma System Assessment indicates there is a need for prehospital providers in the rural areas of the state. Two-thirds (67%) of the respondents indicated recruitment difficulties, and 45% indicated

retention difficulties. The Bureau recently distributed recruitment and retention materials to the four Regions. The Assessment identified a strong correlation between recruitment and retention difficulties and the geo-demographic status of service areas. The majority of providers that ranked wages and geography/location as having a substantial impact on recruitment and retention operate in rural regions of the state, as opposed to those operating in the urban regions. ADHS has adopted the USDOT/NHTSA curriculum as the standard for the EMT positions and recognizes the National Registry (NREMT) certification to facilitate the in-transfer of EMS providers.

b. Have you identified the need for an increased or decreased number of personnel in the systems administration or hospital arena? Discuss strategies for securing needed personnel.

It is clear that there is a need for additional personnel. There are significant collaborative efforts in the state for dealing with this issue. Facilities compete against each other for the limited pool of nurses and physicians.

A number of factors have contributed to an increase in hospital diversion in the metropolitan areas including: 1) Arizona's population growth has substantially exceeded the ability to develop the health care infrastructure, specifically new hospitals to keep up with the demand; and 2) the seasonal influx of visitors and the elderly; and 3) staffing shortages.

With respect to the emergency department and trauma center physician and surgeon supply, the Governor signed Executive Order 2006-09, forming the Emergency Medical Services Access Task Force. This Task Force, however, is limited to evaluating the recruitment and retention of physicians and surgeons. See report for background and resulting recommendations. See attachment 17.

The Arizona Hospital and Healthcare Association and its members have advocated heavily for funding to increase nursing education capacity in Arizona. Attached are documents developed to educate legislators and businesses in Arizona about the Nursing Crisis in Arizona including projected shortages based on population growth, number of nurses per capita, number of inpatient beds per population compared to national averages, nursing education program faculty shortages, etc. See attachment 18.

"The Arizona Physician Workforce Study - Part I" was developed and released in 2005. This study discusses the current physician workforce issues in Arizona and the projections due to the rapid population growth.

5. Outline your plan for flexible response to manage all patients during peak periods of activity that might stress the system. What is your protocol for trauma center divert and prehospital transport response? How do you evaluate its effectiveness and what are your options for creating a change?

Over the past several years peak illness periods have stressed emergency department and EMS resources almost to the point of crisis. This has occurred principally in the two metropolitan areas. Consequently, the Governor's Office and ADHS have established expert committees to evaluate options for:

- Increasing number of physicians and nurses
- Revising ambulance transport destination requirements to include alternate medical facilities
- Evaluate facility bed-licensing requirements
- Influenza public education campaign designed to prevent the spread of influenza and promote the appropriate use of the emergency department

There is no statewide plan, however, regional protocols for trauma center divert and prehospital transport are in place.

REGIONS

- **AEMS**
  The protocol for trauma center diversion and pre-hospital transport response is managed through the EMSystem and the AEMS Patient Management Functional Group Subcommittee on Diversion (Red Book Chapter 8) and reported regularly to the AEMS Executive Board and Functional Group meetings. Most recently this subcommittee and AEMS as a whole have addressed the hospital overload and diversion-closure policy. The final solution has been approved by ADHS as a pilot project for the Southeast sector of the Phoenix metropolitan area.

- **NAEMS**
  NAEMS Council does not have a flexible response plan. Due to the large area covered by the Northern Region response plans are determined at the local/agency level. Northern Region acute care hospitals do not divert. Ground transport of patients is to the nearest hospital for initial care. Rotor aircraft may transport patients to the closest most appropriate hospital based on the designation of a facility or knowledge that services are not available at a given hospital on that day, via such systems as the web-based EMSystem accessed by the transport coordinator/dispatcher.

- **SAEMS**
  The trauma protocols allow for patient diversion to other local facilities. With only one trauma center, they have the authority to divert patients based on field reports of patient condition. Through our MEDS Control System, we have the ability to coordinate patient transfer/diversion to allow for patient stabilization before transfer to a level one center if needed. In our region we have the inevitable position of handling large numbers of patients in a desolate area due to our proximity to the Mexico/US border. Situations such as these (which at times can result in as many as 50 patients) puts a great strain on the system from ambulances (ground and air) and all the medical facilities, both in terms of patient care and lack of funding for reimbursement.

b) Education

1. Have you developed educational standards for all trauma caregiver personnel?

Yes, ADHS licenses, regulates, and inspects all EMS training programs. All EMS training programs are required to meet the USDOT/NHTSA Curriculum. There are no specific requirements for trauma care beyond original EMT certification requirements. Ambulance providers, EMS agencies, and hospitals impose additional trauma training and educational requirements.

The designation criteria specified for designated trauma centers mirror the ACS requirements. BTLS, ATLS, TNCC, and ATCN courses are required at the regional and trauma center level. ATCN courses are provided routinely with ATLS.

No specific trauma courses are required by the Bureau of EMS and Trauma System, nor do the Nursing and Physician Arizona licensing requirements include trauma care.

2. Have you done a trauma system educational needs assessment and identified educational levels of all prehospital providers, as well as the need for additional programs/certifications? Have you assessed all currently available educational programs prior to instituting new programs?

No. A specific trauma system educational needs assessment has not been distributed, however, trauma-specific training questions were included in the 2005 EMS and Trauma System Assessment. Health care institutions were asked to identify which trauma courses were required and responses included BTLS, ATLS, TNCC, and other. We have not instituted new programs nor assessed all currently available education programs. ATCN is also offered by the various trauma centers in the state.

Prehospital care agencies were asked to identify what pediatric training they require. Of those agencies that submitted a completed Assessment, 34% required PALS, 25% required PALS and PEPP, and 33% required no pediatric training, 9% required PEPP, and 1% required PALS, PEPP, and ENPC. The Assessment also asked prehospital care agencies to identify what trauma training they required. Of those providers that submitted a completed Assessment, 36% required no trauma training, 34% required BTLS, 11% required BTLS and ATLS, 9% required BTLS and other training, and 1% to 7% required combinations of the above listed trauma courses.

The Rural Trauma Team Development Course (RTTDC) has been provided to rural health care institutions throughout Arizona. Since early 2005, the course has been taught in 16 rural locations.

REGIONS

- **AEMS**
  The Arizona Trauma and Acute Care Consortium (AZTrACC) has a website (www.aztracc.org) that includes an ongoing calendar of educational events with planned CME and CEUs following completion of a testing module. Additionally, there is a quarterly Arizona statewide trauma grand rounds telecast live to trauma centers outside the Phoenix area through the University of Arizona - Phoenix downtown campus. Hospitals individually provide trauma grand rounds as well.

- **NAEMS**
  NAEMS Council has not conducted a trauma system educational needs assessment, nor identified the educational levels of all prehospital providers in the Northern Region. State statute and rules determine the initial educational levels of all providers certified to provide EMS services in the prehospital environment. NAEMS Council has not assessed available educational programs.

- **SAEMS**
  In our annual survey we try to ascertain the needed educational programs. The council is active in helping to provide funding for needed education. In addition, there are several large conferences, including the Southwest Regional Trauma Conference held each August in Tucson.

3. Does your trauma plan include central or state certification/recertification/decertification for prehospital providers? If no, what is your plan for certification/recertification/decertification of prehospital care providers as they relate to the trauma care system?

The Bureau of EMS and Trauma System regulates all EMT's (Basics, Intermediates, Paramedics) which includes certification, recertification and decertification (revocation). The certification criteria are consistent with USDOT/NHTSA curriculum, and Arizona does not require specific trauma certification for prehospital providers.

4. Describe the quality monitoring activity for review of educational requirements for trauma care personnel.

The Bureau conducts prehospital Training Program Audits and Recertification classes which contain a trauma component as specified in the USDOT/NHTSA Curriculum. The regions provide educational opportunities. The educational requirements for all trauma care staff in a designated trauma center mirror the educational requirements listed in the ACS criteria for trauma center verification. Advanced Life Support ambulance providers are typically associated with a Base Hospital and/or administrative medical directors. These individuals (Administrative Medical Director or Base Hospital Prehospital Care Coordinator) conduct review of clinical care and skill proficiency and can institute targeted training.

B.	3)	Prehospital Care
	a)	Emergency Medical Services Management Agency

1. Is there an EMS agency that has the authority to regulate prehospital care?

Yes, the Arizona Department of Health Services, Bureau of EMS and Trauma System as described in Arizona Revised Statutes, Title 36, Chapter 21.1, Emergency Medical Services.

2. Administration
a. Is the management agency's medical director familiar with, experienced in, and currently involved in prehospital care?

Yes, A.R.S. § 36-2202(F) requires that the medical director of emergency medical services is qualified in emergency medicine and licensed as a physician in one of the states of the United States. Dr. Bentley Bobrow, State EMS Medical Director is a board certified emergency medicine physician and, in addition to his clinical activities

at Mayo Hospital, serves as Administrative Medical Director for Scottsdale Fire Department.
b. Are the medical director's qualifications commensurate with his/her scope of responsibility in the EMS system?
Yes.
c. Is there a quality improvement educational program, and are monitoring functions performed by the medical director or designee?
Yes. Administrative Medical Directors may, but are not required to have designees. These designees may be Physicians, PA's, NP's, RN's, LPN's, EMT-P's, or EMT-I's. There is no requirement for experience in prehospital management. ALS Base Hospitals in the Northern Region currently employ on a part-time or full-time basis RN's with emergency department experience or EMT-P's as prehospital care coordinators/managers.
d. Is there support staff, including a system administrator, familiar with and experienced in prehospital management?
Yes.

3. Education
a. Has the prehospital care management agency integrated care of the trauma patient into the prehospital training program?
Yes. Arizona EMT Training Programs follow the USDOT/NHTSA curriculum**.**
b. Has the prehospital care management agency developed ongoing trauma educational programs?
Yes. The regions provide trauma educational opportunities, which are open to all prehospital and hospital personnel statewide. Additionally, trauma centers provide numerous educational opportunities.

4. Criteria
a. Are there protocols for triage, patient delivery decisions, treatment, and interhospital transfer?
Yes, Pediatric Treatment and Triage Protocols have been maintained up-to-date. Adult Treatment and Triage Protocols have not been reviewed or updated since 1995. The Bureau will begin to update these over the next six months. In the absence of updated statewide adult protocols, the Regions have developed protocols for the providers in their respective regions, which include trauma care, and regularly update these protocols. The State Trauma Advisory Board adopted the Trauma Patient Identification and Field Triage Decision Standard which is used in the four regions. START Protocols are used for triage in mass casualty incidents.
b. Have you implemented ongoing quality improvement of triage/treatment/interhospital transfer criteria?
No. Not on a statewide level. Regions, hospitals, and most pre-hospital agencies have quality improvement processes in place.
c. Have policies, procedures, and/or regulations regarding on-line and off-line medical direction been implemented within the system?
Yes. Rules exist for Medical Direction and ALS Base Hospital Certification. These rules provide for on-line and off-line medical direction, standing orders, medical director qualifications and responsibilities, centralized medical direction communications, ALS Base Hospital requirements, authority, responsibilities, and enforcement.
d. Are standards from the Commission on Accreditation of Ambulance Services and the Commission on Accreditation of Air Medical Services integrated into patient delivery decisions, treatment, and transfer protocols?
No. Standards from the Commission on Accreditation of Ambulance Service are not integrated into patient delivery decisions, treatment, and transfer protocols. Standards for the Commission on Accreditation of Air Medical Services are integrated for inspection purposes for licensure. Air ambulances certified by the Commission on Accreditation of Air Medical Services do not require inspection by the Bureau of EMS and Trauma System if a copy of the certification is provided.

5. Is there a standardized clinical examination for certification and decertification to provide patient care?
Yes. Arizona requires the applicants for certification as an EMT to take and pass the National Registry (NREMT) written and practical examinations for initial certification. EMT's may choose to keep or drop NREMT when they

re-certify.

6. Is there a system-wide quality improvement program in place?
No. Not statewide, however, many base hospitals and trauma centers have quality improvement programs associated with prehospital providers.

b)	**Ambulance and Non-Transporting Medical Unit Guidelines**

1. Are there system-wide guidelines delineating how the type of transportation for the trauma patient is matched to the system's topography and demography, including distance?
No. However, the Bureau will begin to develop rules over the next six months. A legislative inquiry has initiated a review of the dispatch of air medical resources. Trauma Centers in the metropolitan area have also identified this issue. The Arizona Trauma and Acute Care Consortium is conducting research to review the use of air medical transport.

2. Are there statutorily authorized licensing requirements for ground, air, water, and other types of emergency medical transportation?
Yes, however, the Bureau regulates air and ground only.

3. What is the minimum level of staffing (number of persons and their level of certification/licensure) of ambulances and non-transporting medical units responding to the scene?
If the population is less than 10,000, a First Responder and EMT. If the population is greater than 10,000, an EMT and an EMT. We do not license, certify, or regulate non-transporting medical units.

4. What is the minimum level of staffing of ambulances providing interfacility transfers of a major trauma patient?
The Bureau of EMS and Trauma System's technical minimum requirement for transfers is a first responder and an EMT, based on population in the area. EMT-B's, I's, and Paramedics are regulated in the state and must comply with the respective scope of practice authorized in rule, including drugs that may be given by the particular level of EMT. The Arizona Hospital Licensing rules establish, among other things, the requirements for interfacility transfers of patients. The rules require that each hospital establish, document, and implement policies and procedures that cover all hospital services including the transfer of patients (R9-10-213). R9-10-213 further requires documentation in the patient's medical record for patient consent, except during an emergency; date and time of transfer; the acceptance of the patient by and communication with an individual at the receiving health care institution; mode of transportation; and the type of professional assisting in the transfer if an order requires that a patient be assisted during transfer.

5. What are the requirements for on-line and off-line medical direction for ambulance services and non-transporting medical units?
The Bureau of EMS and Trauma System does not regulate non-transporting EMS agencies. Rules exist for Administrative Medical Direction and ALS Base Hospital Certification. These rules provide for on-line and off-line medical direction, standing orders, medical director qualifications and responsibilities, centralized medical direction communications, ALS Base Hospital requirements, authority, responsibilities, and enforcement.

6. Does the distribution of EMS vehicles allow for appropriate emergency response and transport times (based on patient needs and system resources)?
Each CON is characterized by community-identified standards including response times and type of service level and staffing provided. If the stated response times are not being met, remedial planning is required. Alternatively, a CON holder may petition for a change in the CON requirements followed by a public hearing to ascertain community support. Refer to Rule R9-25-901(47) and (48).

7. Do the licensing requirements for ambulances and non-transporting medical units specify minimum acceptable patient care equipment for all ages that generally conforms to the recommendations of the American College of Surgeons and/or state lead agency?
Yes, Arizona Administrative Code (Rule) specifies the minimum equipment and supplies for ambulances. These are lead agency (Bureau) requirements, not ACS. Non-transporting units are not regulated in Arizona.

8. Are there standards, policies, and procedures governing hospital destination for ambulances?
State rules generally require ambulances transport to the nearest emergency receiving facility. An option does exist for alternative destination such as clinics or urgent care centers under specific circumstances. Additionally, the Phoenix Fire Department Automatic Aid Program provides for ensuring that the closest available prehospital unit to the scene is automatically dispatched regardless of their city affiliation. The Automatic Aid system places the needs of the customer first, without regard to jurisdiction or city boundaries. The 20 cities in Maricopa County participate in this dispatch policy. The State Trauma Advisory Board has adopted a Guidance Document for determining when to take a patient to a trauma center - Arizona Patient Identification and Field Triage Decision Standard. This document is based upon the ACS COT Verification Standards for trauma patient destination. The regions have standing orders and protocols to determine most appropriate patient destination and direct patient flow.

9. Does the licensing of ambulance services and non-transporting units include regular inspections and/or an accreditation process based on continuous quality improvement?
Yes. Ambulances are inspected annually. The Bureau does not have jurisdiction over non-transporting units. The process is not based on continuous quality improvement. Requirements for inspections are in rule.

10. Are mutual aid agreements among emergency medical service providers in place?
The Bureau of EMS and Trauma System does not require mutual aid agreements; however, some providers have agreements in place. There is a statewide fire mutual aid agreement and the Automatic Aid Program in Maricopa County.

11. Are there protocols for the "interface" between ambulance services and non-transporting medical units?
Yes, contractual agreements and protocols exist between agencies in some municipalities.

12. Does the prehospital system have interagency agreements with public safety agencies (for example, police and fire) that address security and safety of the injury scene?
No

13. Are there written agreements between ambulance services and non-transporting medical units?
Yes. There are some written agreements between ambulance companies and non-transporting medical units.

14. Is there a policy concerning air ambulance service/ground ambulance service dispatch, coordination, and rendezvous?

No, not at this time, however, the Bureau of EMS and Trauma System is beginning to evaluate and develop rules addressing these issues. Also see the response to question number 1 above.

c) Communication System

1. Do you have a communications network that includes a universal systems access number, prioritized dispatch, postdispatch instructions, dispatch-to-ambulance communication, ambulance-to-ambulance communication, ambulance-to-hospital communication, and hospital-to-hospital communication?

Enhanced 9-1-1 and 9-1-1 in most areas of the state. In general, radio communication as described in the question is good. Geographic and distance challenges exist.

Universal System Access Number:
Arizona's three-digit emergency telephone number system reserves the telephone number "911" for exclusive use as an emergency telephone number for accessing fire, police, and emergency medical services. Results from the 2005 EMS and Trauma System Assessment indicated that 91% of those prehospital providers that submitted a completed Assessment indicated that their service area has 9-1-1 dispatch capability.
Prioritized Dispatch:
Results from the 2005 EMS and Trauma System Assessment indicated that 50% of those prehospital providers that submitted a completed Assessment use a priority dispatch system. On a regional basis, the Assessment results indicated that 62% of providers in the Northern, Southern, and Western regions (comprised of predominantly rural areas) at 46%, 45%, and 48%, respectively.
Post-Dispatch Instructions (Pre-Arrival Instructions):
Results from the 2005 EMS and Trauma System Assessment indicated that 54% of those prehospital care providers that submitted a completed Assessment, 54% indicated that their dispatchers were trained to provide pre-arrival instructions, and 40% indicated their dispatchers were not so trained. Of the prehospital care agencies that indicated their dispatchers were not trained to provide pre-arrival instructions, 83% indicated no plans to implement such training in 2006, but 9% indicated plans to implement such training.
Radio Communications:
The vast majority of the state is covered by a system of mountain-top radio network of UHF, VHF and 800mhz accessible to all ambulance providers the majority of the time. Most providers supplement radios with cellular telephones. Results from the 2005 EMS and Trauma System Assessment indicated that 82% of those prehospital care agencies that submitted a completed Assessment had dispatch to ambulance communication, 92% had dispatch to fire department communication, 67% had ambulance to ambulance communication, 76% had fire department to fire department communication, 52% had ambulance to hospital communication, and 73% had fire department to hospital communication. Of the health care institutions that submitted a completed Assessment, 9% had health care institution to health care institution communication.

The Arizona Interagency Radio System (AIRS) is designed to provide interoperable communications capability to first responders of police, fire, and EMS agencies, as well as other personnel of municipal, county, state, tribal, and federal agencies and approved non-governmental organizations (NGO's) performing public safety activities. This system operates on designated interoperability frequencies. For more information, please see www.azdps.gov/pscc/standards.asp.

2. Does the system have coordination of medical direction and dispatch?

Some dispatch centers with EMD may have a medical director depending on the EMD system they utilize. These are usually private contracts between the physician and the dispatch center.

3. Have you implemented an EMS dispatch curriculum to train communications personnel? If no, describe plans for an EMS dispatch curriculum.

No. Each dispatch center determines the training needs of the personnel in the particular dispatch center. However, statutory authority exists for establishing and implementing dispatch curriculum at the state level.

4. Do you have a public access communications system (911 or enhanced 911)?

Yes. The vast majority of the state is covered. See attachments 19 & 20, wireline and wireless 911 maps.

5. Does the 911 system receive all public calls that request EMS response to trauma patients?

Yes.

6. How frequently are dispatch-to-ambulance, ambulance-to-hospital, and hospital-to-hospital communication attempts unsuccessful? Are there geographic areas where communications cannot be established?

Results from the 2005 EMS and Trauma System Assessment indicated that on a statewide average, 85% of those prehospital care agencies that submitted a completed Assessment indicated that their respective service areas had "dead spots". On a Regional basis, 90% of prehospital care agencies in both the Northern Region and Southern Region indicated their service areas had "dead spots", and 79% of prehospital care agencies in both the Western Region and Central Region indicated their service areas had "dead spots". Those prehospital care agencies that indicated "dead spots" in their service areas identified terrain (mountains and valleys) and the lack of repeaters or an insufficient number of repeaters as the most commonly cited causes for "dead spots".

Occasionally in the metro areas, radio lines may be busy due to increased patient activity. There are backup means available- direct radio contact, cell phone, and relay from Meds Control or EMSCOM, if needed.

7. Are all dispatch centers, ground and air ambulances, and base stations equipped with adequate communications systems?

No. Most will have adequate systems to deal with their day-to-day operations but most will not have equipment that would be considered interoperable in today's post-911 environment. This area is being addressed by the Department of Homeland Security, as one of their primary initiatives is interoperable communications.

8. Are EMS dispatch protocols in place?

The state has not developed EMS dispatch protocols. While the state has not developed or required EMS dispatch protocols, approximately 43% of providers that completed assessments indicated that they had EMD trained dispatchers which would include the use of protocols.

9. Are priority dispatch and postdispatch protocols in place?

While the state has not developed or required EMS dispatch protocol, approximately 43% of providers that completed assessments indicated that they had EMD trained dispatch which would include the use of protocols.

10. Describe the dispatch-to-ambulance, ambulance-to-ambulance, dispatch-to-hospital, ambulance-to-hospital, and hospital-to-hospital communications network.

For the most part, communications are effective but complicated by terrain. See the following descriptions below as examples representative of our system as a whole:

REGIONS

- **NAEMS**
  Most ambulances in the Northern Region have radio communications with their dispatch centers. There are some ambulances that do not have direct communications with their dispatch centers. Ambulance-to-

ambulance communications may be by radio with assigned frequencies, the state mutual aid frequency, cell phones, or satellite phones, which are expensive services for those agencies that have them. Dispatch-to-hospital communications is usually by phone although some hospitals have radios with local radio frequencies in their radio rooms. Ambulance to hospital communications occurs through the DPS EMSCOM repeater system, freestanding repeater systems, cell phone, or satellite phones for those agencies that have them. Hospital-to-hospital communications occurs by phone system. Cell phones may be utilized during fixed telephone outages. A satellite phone system has been available for two years.

- **SAEMS**
  Dispatch centers receive the 911 call and then alert the appropriate agency or unit. The agency will then dispatch its appropriate unit. Depending on the location, a specific unit will be alerted or the agency will then dispatch its appropriate unit. Ambulance to ambulance communication is done over a common channel. Dispatch to hospital is usually only done when advising the hospital of a mass disaster or if the unit cannot contact the hospital and dispatch will then relay patient information. Hospital to hospital is done over Meds Control or direct ring down phone in the Tucson area and regionally over the EMSystems program.

NATIVE AMERICAN

- Tuba City: Dispatch-to-ambulance: dispatch will page on Fireband and give the 911 traffic, EMS responds back to dispatch on dispatch channel and communicates with dispatch on dispatch channel until completion of assignment.
  Ambulance-to-ambulance: ambulance will notify the Navajo Department of Law Enforcement dispatch to dispatch another ambulance; ambulance-to-ambulance communication will be through Fireband or EMSCOM.
  Ambulance-to-hospital: EMS calls the ER and any available ER staff (i.e. nurse, doctor, or ER tech) will answer the radio. Hospital-to-hospital, N/A

11. Identify and describe how communications systems interrelate during mass casualty and disaster incidents.

Many communications systems do not interrelate. Agencies that utilize UHF may be able to communicate with others with UHF and the same as those with VHF frequencies. Communications between agencies have been noted as an area of concern at many real MCI's and drills. The Public Safety Communications Commission in Arizona has tasked itself *"to develop a standards-based, shared voice and data radio system that efficiently and effectively addresses the front-line needs of its users to protect life and property."* Some dispatch centers are also installing trunking systems that achieve this goal for their local level. (A rural perspective).

Interoperable Land Mobile Radio Communications – Radio Spectrums most widely used in Arizona are: VHF, UHF and 800 MHz. The Public Safety Commission **(PSCC)** has developed a statewide system of mountain top interoperable suites using VHF, UHF and 800MHz. spectrums known as the Arizona Interagency Radio System (AIRS). This system uses common naming nomenclature to identity frequency channels for use to allow agencies who operate on one or more of the spectrums to access the interoperable channels and simulcast communications on all three spectrums. This system is accessible by any agency that has signed a MOU with the Department of Public Safety (DPS).

EMSystem - The Arizona Department of Health Services (ADHS), Emergency Preparedness & Response (EPR) Bureau, working closely with the EMS Bureau, has established a hospital emergency department divert status and communication system that allows each hospital ED and patient transport flight program in the state to report its status (*Hospital ED*; open, caution or divert) (*Flight*; available in quarter, unavailable on scene) through a web based system that is monitored 24/7 by regional dispatch centers and the ADHS EPR Bureau. This system can conduct bed polls, send alert notifications and messaging.

This system will be implementing an additional component known as patient tracking in the second quarter of

2007. This component will allow EMS units in the field to use the web based system to enter and track patients from a MCI utilizing barcode scanners in the field and at hospitals to enter patient data into the sub-data base and display the patients location status on a separate display screen within the web based EMSystem that can be monitored by hospitals, dispatch centers and emergency operations centers.

Hospital 800 MHz. System - Central Region - Within the Central EMS Region LMR communications is developing with use or commitment to move to use 800 MHz. There are 36 hospitals within this region. The ADHS ERP Bureau has purchased and is working with the City of Phoenix Fire Dept. to install in each hospital ED an 800 MHz. radio base station to be used as a redundant means of communications in the event of failure of standard or alternate methods. This system will allow hospital ED(s) to communicate with the two major alarm rooms (Phoenix and Mesa Fire) as well as other hospitals, field units, city, county, ADHS and state EOC(s). This project is anticipated to be completed by the third quarter of 2007.

12. Is there a communications quality improvement program?
To the best of our knowledge there is no statewide communications quality improvement program.

d)	**Emergency/Disaster Preparedness Plan**

1. Is the prehospital emergency/disaster preparedness plan integrated with the reminder of the EMS system, local government, private sector, and acute care facilities?
As of January 2007, ADHS has not adopted a prehospital emergency/disaster preparedness plan. However, Arizona Department of Emergency Management has developed disaster response planning which includes all of these components.

2. Are there periodic educational exercises with post-exercise review?
Yes, but certainly more can be done. Drills have been conducted by the Bureau of the Emergency Preparedness and Response. Staff members from the Bureau of EMS and Trauma System participate in many of the exercises. ADHS houses an Emergency Operations Center. BEMSTS staff participate in the exercises. Some post-exercise reviews are done. BEMSTS is included in Super Bowl planning efforts now underway. Medical Surge seminars and Emergency Credentialing Information seminars have been held. Additionally, in August of 2006, ADHS, BEPR conducted a statewide CHEMPACK Plan Table Top Exercise (TTX). This exercise included CHEMPACK Base agencies (Hospital, Fire/EMS) and operational partners (Metropolitan Medical Response System), federal state and local law enforcements, emergency management and county/tribal health departments). The CHEMPACK Project is a CDC, DSNS Program for the forward placement of anti-nerve agent to allow for state and local resources to increase their capacity to respond to a nerve agent event. Arizona's CHEMPACK plan has 28 cache sites within the state. The TTX followed the U.S. Department of Homeland Security prescribed process of exercise events and education. In November 2006, the ADHS' Northern Region, Navajo Indian Health Service (HIS) Area Office, Navajo Tribal Health and the New Mexico Dept. of Health conducted a joint exercise using flu vaccine as a test of the number of Points of Dispensing (POD) and patient through-put in a mass dispensing exercise. This two day exercise utilized a Joint Operations Center (JOC) and followed the U.S. Department of Homeland Security prescribed process of exercise events and education. Fourteen POD(s) vaccinated over 23,000 people in an 8 hour period and in some cases obtained a through-put of 350 per hour. This exercise is being used as a model for rural areas of Arizona and the U.S. IHS.

B.	**4)**	**Definitive Care Facilities**
	a)	**Trauma Care Facilities**

1. Are there identified designation standards for trauma centers?

Yes, the state has established, by statutory authority and administrative rulemaking, designation standards and criteria for trauma center designation. Trauma center designation in Arizona is voluntary. There are currently 7 state designated Level I trauma centers, and no Levels II, III, or IV trauma centers.

2. Is there a process for designation of trauma centers?

Yes. In addition to compliance with administrative rules, the Bureau of EMS and Trauma System created an internal procedure to establish a standard method by which Bureau staff receive, review, process, and approve applications for trauma center designation.

3. Do you have an estimate of the number of trauma patients?

The Arizona State Trauma Registry reflects a total of 22,264 trauma patients for calendar year 2005. However, there were only 9 hospitals reporting data to the State Trauma Registry at that time. We are currently conducting research, utilizing Hospital Discharge Data, to try to determine the number of trauma patients not getting into the State Trauma Registry.

4. Do you have an estimate of the number of trauma surgeons (general surgeons, neurosurgeons, and orthopedic surgeons)?

There are many surgeons who practice in the state of Arizona. However, only a minority take trauma call and practice in the trauma centers. The following physician statewide estimates are based on the number of active physicians' licenses who list a home address in Arizona. A significant number of licensees have no address listed, so this estimate may be low:

Trauma Surgery: 42
General Surgery: 554
Neurological Surgery: 75
Orthopaedic Surgery: 409
Orthopedic Trauma: 33

See breakdowns below provided by most of the trauma centers:

TRAUMA CENTERS

- **Flagstaff Medical Center**
  FMC's current number of General/Trauma surgeons participating in the GS Trauma Call = 7
  Orthopaedic Surgery = 13
  Neurosurgery = 2

- **St. Joseph's Hospital and Medical Center**
  Estimate is 105 providers, neurosurgeons, general/trauma surgeons and ortho surgeons

- **Yuma Regional Medical Center**
  YRMC has no neurosurgeons, but has 7 orthopedic surgeons and 8 general surgeons.

- **Banner Good Samaritan**
  10 Trauma Surgeons
  10 Ortho
  5 Neuro

- **University Medical Center**
  Trauma Surgeons – 4
  Ortho – 16

Neuro – 7

5. Do you have documentation of the available resources in the acute care facilities?
No, the documentation does not exist but the capability to poll and reflect resource availability on an accessible Web-based tool does exist. It is not being utilized in this manner.

6. Are all acute care facilities willing to provide at least a minimum data set on trauma patients?
All licensed hospitals must provide Hospital Discharge Data and Emergency Department data. All hospitals have not been queried to ascertain their willingness to provide trauma data. Only designated trauma centers are mandated to provide trauma data. ALS Base Hospitals may choose to provide trauma data voluntarily.

7. Is the designation process of trauma centers based on the determination of need?
No. The designation process of trauma centers is NOT based on the determination of need. The statute provides for voluntary inclusive trauma center designation.

8. Is there a process and authority for redesignation and/or de-designation?
Yes. Arizona Administrative Code (Rule) provides a process for Designation, Designation Renewal, and Denial or Revocation of Designation.

9. Do you have a definition of major trauma patient?
ADHS has adopted, per STAB's recommendation, the Trauma Patient Registry Inclusion Definition, which identifies a trauma patient to be reported by participating hospitals to the Arizona State Trauma Registry. That document is currently under review and the revised criterion is being incorporated into the draft rulemaking package for the State Trauma Registry. Additionally, we have adopted, as a Guidance Document, the Arizona Trauma Patient Identification & Field Triage Decision Standard, which is very similar to the ACS document. The Regions have also adopted similar Field Triage Decision Standards.

10. Do you have a continuous quality improvement process in place for the trauma system?
No. There are quality improvement activities and processes at the regional level in place. At the state level, STAB's subcommittee, AZ Trauma System Quality Assurance and System Improvement Committee (AZTQ), has made concrete progress towards this goal since its reactivation in April 2006. To date, AZTQ and STAB have established four specific indicators to review system performance: • Patients transferred from one facility to another after 6 hours • Patients transferred with open fractures (injury to wash out >8 hours) • Patients transferred to more than one facility prior to transfer to a trauma center • Patients who die in non-level one centers after 24 hours or longer stay

b)	**Interfacility Transfer**

1. Do you have written transfer agreements between trauma centers and other acute care facilities in the system?
Designated trauma centers must meet the criteria in Exhibit 1 of the Trauma Center Designation rules which are similar to the ACS verification criteria. The rules are not prescriptive but require that transfer agreements be in place if the trauma center does not have the resources or capabilities. Trauma centers have arrangements with other facilities.

2. Do you have written transfer agreements for injured patients with special problems such as:

- **Burns**
- **Pediatrics**
- **Spinal cord injury**
- **Brain injury**
- **Rehabilitation**
- **Other injuries that cannot optimally be treated at your facility**

The EMS for Children Program is actively pursuing a model statewide transfer agreement for pediatric patients.

REGIONS

- **NAEMS**
  NAEMS Council does not have transfer agreements with trauma or acute care centers. The Trauma Center reported a written transfer agreement for the burn patient. The other responding acute care facilities reported no agreements.

- **SAEMS**
  Burns will go to Maricopa
  Peds stays here
  SCI will stay here. For very rare or extreme neuro cases we may transfer to Barrows in Phoenix
  Brain Injury stays here
  Rehab patients will typically go to a Health South facility or Kindred

NATIVE AMERICAN

- Kayenta: EMT protocols and medical direction due to level of care at local.

- Hopi EMS: None

- Hopi Health Care Center: No

- Fort Defiance: Yes. The emergency room has a priority list of facilities they contract with.

TRAUMA CENTERS

- **Flagstaff Medical Center**
  No formal policy for transfer of SCI. Most patients are transferred and accepted at Barrows Neurological Institute @ St Joseph's CHW in Phoenix. Some are kept for FMC's internal rehabilitative services.

- **St. Joseph's Hospital and Medical Center**
  At. St. Joe's we have hospital policy for transfers.

- **Yuma Regional Medical Center**
  No

- **University Medical Center**
  The trauma center may not have all the necessary agreements in place at this time. As most of the time we do not have an issue taking trauma patients or finding an acceptable facility if we do not have the service. The majority of the patients can be served at UMC. Our decision to transfer is based on our surgeons' decision - there is no defined criteria as it is very rare for us to do it.

3. Do you have written transfer agreements between designated trauma centers and rehabilitation centers for patients with the traumatic diagnoses of SCI, TBI (severe/moderate/child), multiple trauma injuries, amputations, and burns?

Individual trauma centers have relationships with specialty care centers to meet the needs of injured patients. However, there are challenges in finding long term care facility and rehab facilities.

4. Do you have a plan that defines objective criteria for the transfer of injured patients from designated trauma care facilities to contracted hospitals and physicians?
No. Not on a statewide basis. Each trauma center has criteria for rehab consultation and transfer to local acute care and long term care facilities.

5. Do your transfer agreements deal with the mode of transportation and the type and qualifications of transport personnel?
No. Not at this time, however, the Bureau will begin to develop these over the next six months. Arizona Administrative Code, Title 9, Chapter 10, Article 2 Hospitals, regulates the transfer of patients. Hospitals develop their own agreements. Both the transferring and receiving physician decide on the mode of transportation appropriate for the patient and based on the current weather conditions. In the southern part of the state telemedicine technology is being utilized for trauma care. Patients are evaluated by the trauma surgeon at the trauma center via telemedicine with the referral facility. This evaluation can determine the appropriateness of the trauma center transfer, best method of transport, initiation of life saving intervention prior to transport, as well as reduce unnecessary transports to the trauma center.

6. Do your transfer agreements comply with COBRA regulations?
There are no state authored transfer agreements; however, all hospitals must follow these regulations when transferring patients.

c)	**Medical Rehabilitation**

1. Is there a joint liaison committee composed of clinical and administrative representatives from the designated trauma centers and rehabilitation centers?
No.

2. Are there existing trauma system policies and procedures that appropriately address each of the following issues: **a. transfer agreements and documentation** **b. treatment guidelines for acute and rehabilitation care** **c. evaluation of patient outcomes and system of care** **d. data exchange procedures** **e. alternative plans for unfunded patients** **f. long-term outcome research**
a. transfer agreements and documentation – As required by the ACS b. treatment guidelines for acute and rehabilitation care – As required by ACS c. evaluation of patient outcomes and system of care – AZTQ has begun developing outcome evaluation filters d. data exchange procedures – Yes e. alternative plans for unfunded patients – Proposition 202 (Indian Gaming Preservation) allocates Indian gaming revenues to the Trauma and Emergency Services Fund. Ten percent of monies are distributed to hospitals having emergency departments for unrecovered emergency services costs, using criteria listed in the Arizona Health Care Cost Containment System rules. f. long-term outcome research – The Bureau has committed a full time position to the evaluation and reporting on the analysis of trauma, EMS and cardio-vascular data from a public health perspective. This individual will conduct outcome research.

Additionally, the Arizona Trauma and Acute Care Consortium (AZTrACC) is conducting trauma-related research. AZTrACC was created by the trauma surgeons from the state designated trauma centers in the state. AZTrACC is a source for obtaining trauma education, reviewing or participating in research trials, joining committees to work on specific trauma-related issues, and participating in discussions. The Consortium is comprised of physicians, nurses, EMTs and other medical professionals who provide medical care to persons injured during traumatic events.

3. Is there a standardized set of rehabilitation data (for example, patient outcome data) that rehabilitation facilities must collect and report to the trauma system database?

No.

4. Do the rehabilitation centers have a set of minimum requirements/qualifications that the physician leaders must meet (for example, Medical Director of SCI Program, Medical Director of TBI Program, Medical Director of Rehabilitation)?

Arizona Hospital licensing rules encompass Special Hospitals; i.e., Rehabilitation Hospitals, and prescribe policies and procedures that must be established, documented, and implemented. The rules require that there are policies that establish the criteria for granting clinical privileges in a hospital. This would include the Rehab Hospitals as well. Each hospital must develop its' own requirements.

5. Is there an exchange of outcome data among the trauma, acute care, and rehabilitation facilities?

No. Not on a statewide trauma system basis.

6. Within the trauma system, what mechanisms are in place to ensure that rehabilitation care is strongly integrated into all phases of acute, primary, and community care?

No. There are no statewide mechanisms in place. Many trauma centers facilitate such integration.

B. 5) Information Systems

1. Does your system have ready access to:
- **a. Law enforcement crash and incident reports**
- **b. Prehospital care reports**
- **c. Emergency department data**
- **d. Acute care facility data including:**
  - **(1) trauma centers**
  - **(2) other acute care hospitals**
  - **(3) specialty centers, including burns and rehabilitation**
- **e. Medical examiner/coroner reports**
- **f. Death certificates**
- **g. Payor records**
- **h. Trauma registry**

The Bureau of EMS and Trauma System has access to significant amounts of valuable data including ED and Hospital databases, Child Fatality data, FARS, Trauma and soon (approximately 24 months) Pre-hospital data. Additionally, Arizona is a CODES state and while two-way data sharing has not been achieved, the Bureau is now represented on the CODES steering committee. Additionally, the Bureau developed, advertised and filled a biostatistician position after consultation with experts at NEDARC to ensure that the Bureau fills the role of data analysis and data reporting as opposed to simply collecting data.

a. CODES aggregate data if requested
b. The Bureau has access to data from providers participating in the ScanHealth data collection process

c. Yes. ADHS collects emergency department data from licensed Arizona hospitals.
d. ADHS collects inpatient hospital discharge data from all state licensed hospitals (except psychiatric facilities). ADHS does not collect outpatient or specialty care data unless the facility is a licensed Arizona hospital. Designated trauma centers in Arizona are required to submit trauma registry data.
e. No
f. Yes
g. Certain payor information and hospital costs are available within the emergency department, hospital discharge and trauma registry databases.
h. Yes. Trauma Registry data is required to be submitted by designated trauma centers. Non-designated facilities may voluntarily submit data. ADHS currently has 11 trauma facilities reporting, 7 of which are Level I designated trauma centers.

2. Describe the population of patients that each database includes.

CODES: Linked law enforcement, ED and Hospital data
ScanHealth: Approximately 15 providers (first responder and ambulance) have purchased access (with financial support) to a prehospital data reporting system.
FARS: National database describing fatal automobile crashes.
ED Database: Data is collected on emergency room visits for patients who visited an emergency department of an Arizona licensed hospital.
Hospital Database: Data is collected on inpatient hospital visits for patients discharged from an Arizona licensed hospital.
ASTR: Designated trauma centers are required to submit data to ADHS on patients meeting trauma registry inclusion criteria outlined by ADHS. Due to the limited number of reporting facilities, trauma registry data is not representative of all trauma cases statewide.

3. Which of the above databases are kept in computerized format?

Emergency department data, hospital discharge data and trauma registry data are all maintained in an electronic format at ADHS. ScanHealth data is a for-profit prehospital data registry located in Minnesota. CODES and FARS are national databases; CODES probably houses collected data locally in aggregate form for national submission.

4. Which databases have a system-wide or (partial) standardized format or subset?

The emergency department, hospital discharge and trauma registry databases each have standardized formats in which reporting hospitals must submit their data. These databases, however, are not standardized across ADHS. Each database varies in the format, data elements and data definitions that are required.
FARS and CODES are standardized Federal databases. ScanHealth is a NEMSIS Gold software package, though there has not been significant effort exerted to ensure uniform data definitions or requiring complete records for valid submission.

5. Which of the above databases can be linked?

ADHS is working to implement linkage of emergency department and hospital discharge data with the data that is contained in the trauma registry. There is potential for linking trauma registry data to death records, but this linkage has not been initiated at this time. CODES has requested access to the ASTR.

6. Do you gather E code data?

Yes. Emergency Department and hospital discharge data require the collection of the primary external cause of injury code and the E849 place of injury code. The database also allows for collection of up to 3 additional E-codes. Trauma Registry collection requirements include the patient's primary external cause of injury code and the E849 place of injury code.

7. Describe the role and responsibilities of agencies and institutions for collecting and maintaining the data.

ADHS is responsible for prescribing and implementing the data collection of emergency department, hospital discharge and trauma registry data. ADHS is also responsible for maintaining the State databases. Hospitals with Arizona licenses are required to submit emergency department and inpatient hospital discharge data twice per year in a format requested by ADHS. Designated trauma centers are required to submit quarterly trauma data in a format outlined by ADHS. The Bureau is just beginning the process of writing rules for EMS data collection from CON agencies and will develop a work group to assist in the RFI, RFP process, and provide guidance in the selection of data elements and definitions. The Bureau has applied for seed funding from the Governor's Office of Highway Safety section 408 funds.

8. How is the completeness, timeliness, and quality of the data monitored? What are the standards for data collection and reporting from each data provider?

Emergency department and inpatient hospital discharge data is run through approximately 300 audit checks examining format, revenue codes, internal consistency and completeness. If the data does not match the required format or does not pass the audit checks, a feedback letter is sent to the facility and corrections are required. Submission timeliness is also monitored.

ADHS requires quarterly trauma registry data submission but the completeness and quality of the data has not yet been assessed. ADHS plans to work with the registry software vendor to develop audit checks for the data so that completeness and quality feedback can be given to reporting facilities. Specific time frames for implementing completeness and quality checks have not been established. Submission guidelines are in effect but penalties are not enforced for untimely submission. Inter-rater reliability testing is being developed to assess the reliability of abstraction between registrars.

9. What are the standards for data collection and reporting from each data provider?

Hospitals are provided with required data element lists and detailed data dictionaries to assist them in collecting State required data elements according to standards outlined by ADHS.

Emergency department and inpatient hospital discharge data reporting requirements and collection standards are determined by State statute. National standards do not dictate the collection and reporting of this data and standards vary between states.

The Arizona State Trauma Registry recently underwent a lengthy data standardization project in which reporting hospital data was mapped and converted to a standardized format. Trauma registry collection and reporting standards are determined by ADHS with assistance from the State Trauma Advisory Board and its quality assurance committees. National trauma registry standards are being encouraged by the American College of Surgeons and the National Trauma Data Bank. ADHS currently requires many of the same data elements requested by NTDB but the list does not completely match national standards. The process has begun to align the Arizona State Trauma Registry with ACS recommendations starting with 2008 data. A trauma registry user manual with detailed information and instructions is in draft format and is being reviewed by the Trauma Registry Users Group.

In reference to the future EMS data collection project, the State intends to collect (at a minimum) the core data set and to submit to NEMSIS as allowed by law.

10. How is the confidentiality of the data ensured and monitored?

ADHS computer workstations and networks are login and password protected. Firewall and network security measures are handled by ADHS ITS Data Security. Any printed confidential data is stored in locked cabinets. Emails outside of ADHS that contain confidential information must be sent using a secure messenger system.

The emergency department and hospital discharge database is login and password protected. A specific process is

in place for certain ADHS users to gain access to emergency department and hospital discharge data. Users must complete and sign required forms to initiate the process. Every six months, users must verify they still need access to the database. There are strict limitations on what type of data may be released. In rare instances, identifying information may be released for research purposes if strict confidentiality measures are documented and data agreements are signed.

The workstation and trauma registry software are both login and password protected, each with a unique password. The trauma registry is housed on a network drive, to which only authorized ADHS users have access rights to the network. Individuals outside of ADHS are not allowed access to the registry. CDs and floppy disks containing data and any confidential reports are stored in locked drawers in ADHS building.

Public requests for trauma registry data require approval from more than one staff member at ADHS to ensure that the data being released is aggregate, confidential and non-identifying. Confidential trauma data subsets cannot be released outside of ADHS as Arizona statute does not allow for the release. Non-confidential trauma data may be reviewed with advisory board and quality assurance committee members, but only if the quality assurance meeting is called into "executive session" and all members have signed confidentiality agreements.

EMS Data will be handled in the same fashion.

B.	6)	Evaluation

1. Describe the concurrent plan for evaluating the individual trauma system components and system operations. The plan should include quality improvement for EMS trauma centers, and so on. How does the system monitor compliance with system standards for each component – prehospital acute care facilities, acute care facilities, trauma center specialty centers, rehabilitation centers?

There is currently no statewide trauma system plan for evaluating the individual trauma system components and system operations. Once fully implemented, the AZTQ will: (1) develop and recommend standards for a uniform data collection system for the State's Trauma Registry; (2) develop and recommend a definition of a "trauma patient" for the purpose of trauma registry inclusion; recommend safeguards that will result in maintaining confidentiality of trauma registry data; (3) develop and recommend guidelines for the use of trauma registry data in system quality assurance and improvement processes which evaluate system performance and recommend system enhancements; (4) develop and recommend guidelines for the release of information derived from data generated through the State's trauma registry; and (5) develop methods for continual quality enhancement of state trauma registry data and the quality assurance and system improvement processes. There are system performance indicators being queried and reported at STAB. These audits will be updated and changed as needed to evaluate system performance. At the Base hospital level, facilities evaluate the performance of the pre-hospital segment.

The regions are also conducting various quality improvement activities related to the trauma system.

2. Is there a quality improvement committee for the system? To whom does it report? Who reports to the committee?

Yes. AZTQ is the trauma quality improvement subcommittee established by STAB for the trauma system. This subcommittee reports directly to STAB.

3. Is there a unified approach to quality improvement throughout the system?

There are system performance indicators being queried and reported at STAB. These audits will be updated and changed as needed to evaluate system performance. At the Base hospital level, facilities evaluate the performance of the pre-hospital segment.

4. How do the quality improvement programs for each component support the other elements of the system?

(For example, does the quality improvement program for prehospital feed into the trauma center and back? Does quality improvement of trauma centers feed into acute care hospitals?)

Arizona Revised Statutes authorizes the State Trauma Advisory Board and the Arizona Trauma System Quality Assurance and System Improvement Committee to enter into executive session to discuss confidential matters including confidential trauma registry data for evaluating trauma system quality assurance, trauma system quality improvement processes, and trauma system performance improvement plans in order to make recommendations to the Arizona Department of Health Services. These committees are multi-disciplinary and include pre-hospital personnel.

Informal quality improvement programs for each component support the other elements of the system. But quality improvement programs for pre-hospital do not automatically feed into the trauma center or back. Trauma centers participate sporadically in Tape and Chart Rounds with the pre-hospital people on trauma patients and for teaching purposes. Quality improvement of trauma centers does not automatically feed into the acute care hospitals.

5. What group/body oversees the quality assurance for the whole system?

AZTQ and STAB are responsible for overseeing the quality assurance for the trauma care system.

6. Are there standardized filters that each component of the system must audit and report to the system?

The State Trauma Advisory Board and its subcommittee, AZTQ, established performance indicators to be reviewed for system performance. The following are the statewide filters that the trauma centers will be submitting. This information will be reported back to the committees:

- Patients transferred from one facility to another after 6 hours
- Patients transferred with open fractures (injury to wash out >8 hours)
- Patients transferred to more than one facility prior to transfer to a trauma center
- Injured patients who die in non-level one centers after 24 hours or longer stay

7. How does the system quality management program interface with trauma center quality management programs?

While there is no formal integration of these elements, key stakeholders such as trauma registrars, surgeons, and EMS providers actively participate in AZTQ, STAB, and the Trauma Registry Users Group.

8. Does the trauma center designation process require trauma centers to demonstrate that they have established authority, responsibility, and organized structure for the quality management program?

Yes. The Arizona designation criteria mirror the ACS criteria for the quality management program. ACS will conduct all reviews for Levels I, II, and III.

9. Is there a system-wide process for monitoring quality of care, including establishment of standard of care, concurrent review, systematic evaluation of audit filters for care review, multidisciplinary case review, and trending of patient-related data (including process and outcome indicators)?

This process is in its infancy. The Bureau collects and reports on several system indicators (identified above). It is the plan of the Bureau to ensure that formal analysis of trauma registry data will be used to drive all aspects of system review and enhancement.

10. If there is no system-wide process, provide examples from the trauma center quality assurance program.

- **Flagstaff Medical Center**
  The State of AZ incorporates the national ACS standards of quality trauma care into the State Trauma Registry in the form of complications and audit filters.

- **St. Joseph's Hospital and Medical Center**
  We use the ACS audit filters in our quality assurance program.

- **University Medical Center**
  The UMC trauma quality assurance program covers both the inpatient and prehospital areas of trauma care. The UMC trauma registry will support the review and supplies some regional system data for the SAEMS PI process. The data supplied by UMC and reviewed for SAEMS includes redirects, urban trauma sent to community hospitals requiring secondary transports to trauma center, interfacility over triage, and multi-casualty incidents. Trends identified through the trauma center processes regarding triage can also support system changes. Prehospital trends and issues are reported back to the agency and are also trended to support education for system providers.

11. What data are acute care facilities required to submit for the system quality improvement program?
The Bureau does not have jurisdiction over non-designated trauma centers. As described earlier, trauma centers are required to submit trauma registry data, which will essentially mirror the NTDB.

12. If there is a system trauma registry, how does it contribute to the quality improvement?
STAB has identified a subset of trauma data elements to be used as system performance indicators. Trauma registry reports are generated which evaluate trauma system performance. The review of system performance indicators will contribute to the quality of the state trauma system.

13. How have changes and incentives affected the care of the trauma patient and what are the branching impacts of these changes?
Reports are generated from the State Trauma Registry and presented to AZTQ and STAB for review. These reports will identify the state of trauma care in Arizona.

B.	**7)**	**Research**

1. Describe the process for gaining access to system data for research purposes.
It is the intention of the Department to perform injury research. STAB will have a role in driving this research by assisting in identifying priorities. Only aggregate and de-identified data may be released to the public pursuant to A.R.S. § 36-2220(1). Data used for external research purposes will be processed in the same manner as any other request for data. An ADHS Public Records Request Form must be completed and submitted. Arizona statutes do not provide for the availability of confidential data for research purposes.

2. What funding does the system make available for research?
The Bureau has committed a full time position to the evaluation and reporting on the analysis of trauma, EMS and cardio-vascular data from a public health perspective. Trauma centers do not receive specific funding for research.

3. Please submit examples of trauma-related research in each of the above categories conducted or facilitated by the system.
The Bureau has not conducted primary trauma research at this early stage.